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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,537	03/28/2001	Randall K. Curey	P573C	6434
23586	7590	10/22/2004	EXAMINER	
ROBERT E MALM 16624 PEQUENO PLACE PACIFIC PALISADES, CA 90272			EL HADY, NABIL M	
			ART UNIT	PAPER NUMBER
			2154	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/821,537	CUREY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nabil M El-Hady	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 16 July 2004 and 29 September 2004.

2a)  This action is **FINAL**.                                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-49 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-49 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_

1. In view of the Appeal Brief filed on 7/16/2004, PROSECUTION IS HEREBY

REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Claims 1-49 are pending in this application.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 25, and 26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6, and 7 of copending

allowed Application No. 09/ 572,298, hereafter "298". Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and "298" disclose method and apparatus for repetitively executing a plurality of software packages in time intervals at a plurality of rates (time intervals recurring at a predetermined rate) by generating (counting )a sequence of time intervals that are not overlapping (contiguous), and executing a plurality of software packages each during its sequence of time intervals (time increment in one or more sequence of time increment).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following words or phrases are not clearly understood and render the corresponding claims vague or indefinite :

a) "a plurality of software packages", claim 1, line 6, and claim 26, line 6, it is not clearly understood if "a plurality of software packages" is the same "the plurality of software packages" referred to in the same claims, lines 3-4, and line 5. If "a plurality of software packages" does refer to the same plurality, then the phrase should be "the plurality of software packages". However, if "a plurality of software packages" does mean

a subset of the previously defined "the plurality of software packages", or if it does mean a set of control software packages different from "the plurality of software packages", then it is not clearly understood on what bases, how or why, this subset of this set is being chosen/generated to be executed;

b) "each software package", claims 21 and 46, line 2; "a software package", claims 21 and 46, lines 3-4; and "another software package", claims 21 and 46, line 5, again as stated above, it is not clearly understood to which plurality of software packages this limitation is referring to.

c) "the plurality of software packages", claims 23 and 48, lines 1-2, again as stated above, it is not clearly understood to which plurality of software packages this limitation is referring to.

d) "a software package", claims 24 and 49, line 1, again as stated above, it is not clearly understood from which plurality of software packages this limitation is referring to.

e) "valid software packages", claim 2, lines 2 and 3, and claim 27, lines 2 and 3, it is not clearly understood what "valid" here mean, valid with respect to what , or what is the difference between valid and non-valid software package. Also, it is not clear if validity should describe the software package or the memory region of the software package as indicated in claim 3, line 2 and claim 28, line 2;

f) "a stack memory region and/or a heap memory region", claims 6 and 31, line 3; and "the stack memory range and/or the heap memory range", claims 6 and 31, lines 3-4 and claims 7 and 32, lines 1-2; it is not clearly understood with the use of and/or what is included and what is excluded for the claim limitation, specially when a stack region and a heap region in a memory constitute different purpose and different function.

g) "separate partitions", claim 18, line 2, it is not clearly understood what "partitions" mean, if it means memory partition, then wording has to be consistent with "memory region" used in other claims, or clearly identified as memory partition;

h) "the presence of those software packages that are present", claims 22 and 47, lines 1-2, it is not clearly understood what "presence" is referring to, and where is the location of these software packages to detected., and software packages are identified by "those".

B. The following has insufficient antecedent basis:

- a) "safety-critical software", claim 18, line 1, and claim 43, line 1;
- b) "non-safety-critical software", claim 18, line2, and claim 43, line 2;
- c) "the presence of those software packages that are present", claims 22 and 47, lines 1-2,

7. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. A single claim which claims both an

apparatus and the method steps of using the apparatus in indefinite under 35 U.S.C. 112, second paragraph, see MPEP 2173.05(p).

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claim 25 is rejected under 35 U.S.C. 101 because the claim is directed to neither a "process" nor "machine", but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of the invention in the alternative only, Id. At 1551., see MPEP 2173.05(p).

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 8, 23, 25, 26, 33, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Blum et al. (US 4,109,311), hereafter "Blum".

12. As to claim 1, Blum discloses the invention as claimed including a method for repetitively executing (col. 5, lines 35-42; and col. 6, lines 50-52) a plurality of software packages at one or more rates (the program requiring the greatest amount of processing time is allocated a greater number of time slices, col. 3, lines 47-54), utilizing a common set of computational resources

(col. 3, lines 42-44), the method comprising: generating a sequence of time intervals for each of the plurality of software packages (col. 3, lines 47-54; and col. 6, lines 2-9), the time intervals belonging to one software package not overlapping the time intervals belonging to any other of the plurality of software packages (col. 3, lines 40-46); executing a plurality of software packages (abstract, lines 2-6), each software package being executed during the time intervals of its sequence of time intervals (abstract, lines 6-8).

13. As to claim 25, the claim is rejected for the same reasons as claim 1 above. In addition, Blum discloses an apparatus for practicing the method of claim 1 (Fig. 5).

14. As to claim 26, the claim is rejected for the same reasons as claim 1 above. In addition, Blum discloses an apparatus for repetitively executing (Fig. 5; and col. 5, lines 35-42; and col. 6, lines 50-52) a plurality of software packages at a plurality of rates (the program requiring the greatest amount of processing time is allocated a greater number of time slices, col. 3, lines 47-54), the apparatus comprising: a means for generating a sequence of time intervals for each of the plurality of software packages (col. 3, lines 47-54; and col. 6, lines 2-9), the time intervals belonging to one software package not overlapping the time intervals belonging to any other of the plurality of software packages (col. 3, lines 40-46); a means for executing a plurality of software packages (abstract, lines 2-6; and Fig. 5), each software package being executed during the time intervals of its sequence of time intervals (abstract, lines 6-8).

15. As to claims 8 and 33, Blum discloses a software package is assigned its own dedicated memory region (col. 3, line 65 to col. 4, line 13; and col. 4, lines 50-54).

16. As to claims 23 and 48, Blum discloses a software package is independently compiled, linked, and loaded (inherent in col. 3, line 65 to col. 4, line 13; and col. 4, lines 50-54).

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 10, 13, 18, 35, 38, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blum et al. (US 4,109,311), hereafter "Blum".

19. As to claims 10, 11, 35, and 36, Blum does not necessarily disclose background tasks and foreground tasks. Within the software packages. However, it is well known in the art of task management, and would have been obvious to one skilled in the art at the time of the invention to divide the tasks in the software packages to foreground tasks and background tasks, where as the naming indicates, the foreground tasks have priority over the background tasks, a task such as an infinite loop may be running in the background.

20. As to claims 13, 14, 38, and 39 , Blum does not necessarily disclose a failure log for logging failure of execution information. However, It is well known in the art of program execution, and would have been obvious to one skilled in the art at the time of the invention to log execution failures linked to software packages causing the failure in order to record different occurrences, reasons, and locations of execution failures for future modifications.

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21. As to claims 18 and 43, Blum discloses software packages are assigned own memory partitions (col. 3, line 65 to col. 4, line 13; and col. 4, lines 50-54), but does not necessarily teach safety-critical and non-safety critical software. It would have been obvious to one skilled in the art at the time of the invention to place the safety-critical and the non-safety critical software in separate partitions.

22. Claims 2-7, 9, 12, 15-17, 19-22, 24, 27-32, 34, 37, 40-42, 44-47, and 49 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

23. Applicant's arguments with respect to claims 1-49 have been considered but are moot in view of the new ground(s) of rejection.

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anderson et al. (US 6,304,891) ; Bate et al. (US 6,151,538) ; Bilgic et al. (US 2001/0043572 A1) ; Reiffin (US 5,694,603) ; Nemirovsky et al. (US 5,117,387); Leavitt et al. (US 5,918,047); and Peters et al. (US 4,606,025).

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nabil M El-Hady whose telephone number is (703) 308-7990. The examiner can normally be reached on 9:00 - 4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 18, 2004

  
Nabil El-Hady, Ph.D, M.B.A.  
Primary Patent Examiner  
Art Unit 2154